IN THE CLAIMS:

Please substitute the following claims for the same-numbered claims in the application:

1. (Currently Amended) A scanning probe microscope tip consisting of coating said tip with a layer of chemically-synthesized nanoparticles affixed to said tip such that a drop of solvent containing said nanoparticles is deposited onto a surface of a liquid subphase prior to said nanoparticles being affixed to said tip, each of said nanoparticles comprising a length and width, wherein said length differs from said width by less than approximately 15%,

wherein said each of said nanoparticles comprises an outer coating layer encapsulating each nanoparticle,

wherein said tip is a non-magnetic silicon AFM tip,

wherein said tip is coated with an adhesion layer,

wherein said adhesion layer is between said tip and said nanoparticles, ~~and~~

wherein said nanoparticles are generally spherical[[.]], and

wherein said solvent comprises any of toluene, heptane, pentane, chloroform, and dichloromethane.

2. (Previously Presented) The tip of claim 1, wherein said scanning probe microscope tip is one of an atomic force microscope tip, a near-field scanning optical microscope tip, and a scanning tunneling microscope tip.

3. (Previously Presented) The tip of claim 1, wherein said nanoparticles comprise at least one of an amorphous, crystalline, ferromagnetic, paramagnetic, superparamagnetic, antiferromagnetic, ferrimagnetic, magneto optic, ferroelectric, piezoelectric, superconducting, semiconducting, magnetically-doped semiconducting, insulating, fluorescent, and chemically catalytic nanoparticles.

4. (Previously Presented) The tip of claim 1, wherein said outer coating layer comprises an organic layer; wherein said nanoparticles having a diameter ranging from 2 nm to 20 nm, and said organic layer having a thickness ranging from 0.5 nm to 5 nm.

5. (Previously Presented) The tip of claim 1, wherein said outer coating layer comprises an organic coat comprising a head-group and a tail-group;

wherein said head group comprises one of an amine, carboxylic acid, isocyanide, nitrile, phosphene, phosphonic acid, sulfonic acid, thiol, and trichlorosilane; and

wherein said tail-group comprises one of an alkyl chain, aryl chain, fluorocarbon, siloxane, fluorophore, DNA, carbohydrate, and protein.

6. (Previously Presented) The tip of claim 1, wherein said adhesion layer comprises one of n-(2-aminoethyl) 3-aminopropyl-trimethoxysilane, polyethylineimine, polymethylmethacrylate, epoxy, cyanoacrylate adhesive, and an α,ω alkyl chain.

7. (Previously Presented) The tip of claim 1, wherein said layer of chemically-synthesized

nanoparticles is at least one nanoparticle thick.

8. (Previously Presented) The tip of claim 1, wherein said layer of chemically-synthesized nanoparticles is a single layer of nanoparticles thick and covers only the apex of said tip.

9. (Previously Presented) The tip of claim 1, wherein said layer of chemically-synthesized nanoparticles comprises a single nanoparticle affixed to an apex of said tip.

10. (Currently Amended) A method of forming a scanning probe microscope tip, said method consisting of:

depositing a solvent containing nanoparticles onto a surface of a liquid solution, wherein said solvent comprises any of toluene, heptane, pentane, chloroform, and dichloromethane;

wherein the tip is a non-magnetic silicon AFM tip;

~~coating~~ wherein said scanning probe microscope tip is coated with an adhesion promoter;

~~dipping~~ wherein said scanning probe microscope tip is first dipped into [[a]] the liquid solution of nanoparticles and then said scanning probe microscope tip is withdrawn from said liquid solution, each of said nanoparticles comprising a length and a width; and

~~withdrawing said scanning probe microscope tip from said solution;~~

wherein said length differs from said width by less than approximately 15%,

wherein ~~said step of~~ the dipping causes said nanoparticles to become affixed to said scanning probe microscope tip,

wherein said scanning probe microscope tip comprises a tip apex,

wherein said each of said nanoparticles comprises an outer coating layer, and wherein said nanoparticles are generally spherical.

11. (Previously Presented) The method of claim 10, wherein said step of dipping said scanning probe microscope tip into a solution of nanoparticles comprises dipping said scanning probe microscope tip into a monolayer of nanoparticles floating on a liquid subphase.

12. (Previously Presented) The method of claim 10, wherein said step of dipping said scanning probe microscope tip into a solution of nanoparticles comprises inking an elastomer with a plurality of nanoparticles; and dipping said scanning probe microscope tip into said elastomer.

13. (Previously Presented) The method of claim 10, further comprising washing off said solution after said step of withdrawing said scanning probe microscope tip from said solution, wherein said solution is a nonvolatile solution.

14. (Previously Presented) The method of claim 10, further comprising applying an electric potential to said scanning probe microscope tip prior to said step of dipping said scanning probe microscope tip into a solution of nanoparticles.

15. (Previously Presented) The method of claim 14, wherein said solution further comprises an electrochemical solution, a supporting electrolyte, and an electrode held at a neutral potential.

16. (Previously Presented) The method of claim 10, wherein said nanoparticles form a layer around said scanning probe microscope tip, wherein said layer is one nanoparticle thick.

17. (Previously Presented) The method of claim 10, wherein said nanoparticles form a layer around said scanning probe microscope tip, wherein said layer comprises a single layer of nanoparticles and covers only said tip apex.

18. (Previously Presented) The method of claim 10, wherein only a single nanoparticle is affixed to said tip apex.

19. (Canceled).

20. (Previously Presented) The method of claim 10, wherein said step of dipping said scanning probe microscope tip into a solution of nanoparticles comprises submerging said tip into said liquid solution.

21. (Previously Presented) The method of claim 10, wherein said nanoparticles form a layer around said tip, said method further comprising exposing said layer of nanoparticles to one of a laser light, a beam of electrons, ultraviolet light, and heat.

22. (Previously Presented) The method of claim 10, wherein said nanoparticles form a layer

around said tip, said method further comprising transforming said layer of nanoparticles into an electrically continuous film by annealing.

23. (Previously Presented) The method of claim 10, wherein said nanoparticles form a layer around said tip, said method further comprising orienting uniformly the magnetic axis of said nanoparticles by annealing in the presence of a magnetic field.

24. (Currently Amended) A method of forming a scanning probe microscope tip, said method comprising:

depositing a solvent containing generally spherical nanoparticles onto a surface of a liquid solution, wherein said solvent comprises any of toluene, heptane, pentane, chloroform, and dichloromethane;

wherein said tip is a non-magnetic silicon AFM tip;

coating said scanning probe microscope tip, with the exception of an apex of said tip, with a sacrificial adhesion layer;

affixing the nanoparticles to said tip, wherein said affixing consists of depositing said generally spherical nanoparticles from said liquid solution over said tip, ~~wherein said nanoparticles are affixed to said tip,~~ each of said nanoparticles comprising a length and width, said length differs from said width by less than approximately 15%; and

removing said sacrificial layer,

wherein said each of said nanoparticles comprises an outer coating layer encapsulating each nanoparticle.

25. (Currently Amended) A method of forming a scanning probe microscope tip, said method comprising:

depositing a solvent containing generally spherical nanoparticles onto a surface of a liquid subphase, wherein said solvent comprises any of toluene, heptane, pentane, chloroform, and dichloromethane;

wherein said tip comprises a non-magnetic silicon AFM tip;

coating said scanning probe microscope tip with an adhesion promoter;

affixing the nanoparticles to said tip, wherein said affixing consists of dipping said scanning probe microscope tip into a monolayer of said generally spherical nanoparticles floating on [[a]] said liquid subphase, each of said nanoparticles comprising a length and width, said length differs from said width by less than approximately 15%; and

withdrawing said scanning probe microscope tip from said liquid subphase;

~~wherein said step of dipping causes said nanoparticles to affix to said scanning probe microscope tip,~~

wherein said scanning probe microscope tip comprises a tip apex, and

wherein said each of said nanoparticles comprises an outer coating layer encapsulating each nanoparticle.

26. (Currently Amended) A method of forming a scanning probe microscope tip, said method comprising:

depositing a solvent containing generally spherical nanoparticles onto a surface of a

liquid subphase, wherein said solvent comprises any of toluene, heptane, pentane, chloroform, and dichloromethane;

wherein said tip is a non-magnetic silicon AFM tip;

inking an elastomer with a plurality of said generally spherical nanoparticles, each of said nanoparticles comprising a length and width, said length differs from said width by less than approximately 15%;

coating said scanning probe microscope tip with an adhesion promoter;

affixing the nanoparticles to said tip, wherein said affixing consists of dipping said scanning probe microscope tip into said elastomer; and

withdrawing said scanning probe microscope tip from said elastomer;

~~wherein said step of dipping causes said nanoparticles to affix to said scanning probe microscope tip,~~

wherein said scanning probe microscope tip comprises a tip apex, and

wherein said each of said nanoparticles comprises an outer coating layer encapsulating each nanoparticle.

27. (Currently Amended) A method of forming a scanning probe microscope tip, said method comprising:

depositing a solvent containing generally spherical nanoparticles onto a surface of a liquid solution, wherein said solvent comprises any of toluene, heptane, pentane, chloroform, and dichloromethane;

wherein said tip is a non-magnetic silicon AFM tip;

coating said scanning probe microscope tip with an adhesion promoter;

affixing the nanoparticles to said tip, wherein said affixing consists of dipping said scanning probe microscope tip into [[a]] said liquid solution, wherein said liquid solution is nonvolatile and further comprises a plurality of said generally spherical nanoparticles dispersed therein, each of said nanoparticles comprising a length and width, said length differs from said width by less than approximately 15%;

withdrawing said scanning probe microscope tip from said liquid solution; and

washing off said liquid solution, whereby said nanoparticles remain on said scanning probe microscope tip,

~~wherein said step of dipping causes said nanoparticles to affix to said scanning probe microscope tip,~~

wherein said scanning probe microscope tip comprises a tip apex, and

wherein said each of said nanoparticles comprises an outer coating layer encapsulating each nanoparticle.

28. (Currently Amended) A method of forming a scanning probe microscope tip, said method comprising:

depositing a solvent containing generally spherical nanoparticles onto a surface of an electrochemical liquid solution, wherein said solvent comprises any of toluene, heptane, pentane, chloroform, and dichloromethane;

wherein said tip is a non-magnetic silicon AFM tip;

coating said scanning probe microscope tip with an adhesion promoter;

affixing the nanoparticles to said tip, wherein said affixing consists of dipping said scanning probe microscope tip into ~~an~~ the electrochemical solution, wherein said electrochemical solution comprises ~~generally spherical nanoparticles, a solvent, and~~ an electrode held at a neutral potential, each of said nanoparticles comprising a length and width, said length differs from said width by less than approximately 15%;

applying an electric potential to said scanning probe microscope tip; and

withdrawing said scanning probe microscope tip from said electrochemical solution;

~~wherein said step of dipping causes said nanoparticles to affix to said scanning probe microscope tip,~~

wherein said scanning probe microscope tip comprises a tip apex, and

wherein said each of said nanoparticles comprises an outer coating layer encapsulating each nanoparticle.

29. (Previously Presented) The method of claim 28, wherein said electrochemical solution further comprises a supporting electrolyte and a reference electrode.

30. (Canceled).

31. (Previously Presented) The tip of claim 1, wherein said nanoparticles comprise generally spherical cobalt nanoparticles.

32. (Previously Presented) The tip of claim 1, wherein said outer coating layer comprises a

layer of oleic acid.

33-36. (Canceled).

37. (Currently Amended) A scanning probe microscope tip consisting of coating said tip with a layer of chemically-synthesized generally spherical nanoparticles affixed to said tip such that a drop of solvent containing said nanoparticles is deposited onto a surface of a liquid subphase prior to said nanoparticles being affixed to said tip,

wherein said solvent comprises any of toluene, heptane, pentane, chloroform, and dichloromethane,

wherein said tip comprises a non-magnetic silicon AFM tip;

wherein said nanoparticles are shaped in a configuration other than an elongated tube configuration,

wherein each of said nanoparticles comprises an outer coating layer encapsulating each nanoparticle,

wherein said scanning probe microscope tip is coated with an adhesion layer, and wherein said adhesion layer is between said tip and said nanoparticles.

38. (Currently Amended) A scanning probe microscope tip consisting of coating said tip with a layer of chemically-synthesized nanoparticles affixed to said tip such that a drop of solvent containing said nanoparticles is deposited onto a surface of a liquid subphase prior to said nanoparticles being affixed to said tip, each of said nanoparticles comprising a length and width,

wherein said length differs from said width by less than approximately 15%,

wherein said tip is a non-magnetic silicon AFM tip;

wherein said each of said nanoparticles comprises an outer coating layer encapsulating each nanoparticle,

wherein said outer coating layer comprises an organic layer,

wherein said nanoparticles having a diameter ranging from 2 nm to 20 nm, and said organic layer having a thickness ranging from 0.5 nm to 5 nm,

wherein said outer coating layer comprises an organic coat comprising a head-group and a tail-group;

wherein said head group comprises one of an amine, carboxylic acid, isocyanide, nitrile, phosphene, phosphonic acid, sulfonic acid, thiol, and trichlorosilane;

wherein said tail-group comprises one of an alkyl chain, aryl chain, fluorocarbon, siloxane, fluorophore, DNA, carbohydrate, and protein,

wherein said tip is coated with an adhesion layer,

wherein said adhesion layer is between said tip and said nanoparticles,

wherein said nanoparticles are generally spherical,

wherein said adhesion layer comprises one of n-(2-aminoethyl) 3-aminopropyl-trimethoxysilane, polyethylineimine, polymethylmethacrylate, epoxy, cyanoacrylate adhesive, and an α,ω alkyl chain,

wherein said layer of chemically-synthesized nanoparticles is a single layer of nanoparticles thick and covers only the apex of said tip, ~~and~~

wherein said layer of chemically-synthesized nanoparticles is at least one nanoparticle

thick[[.]], and

wherein said solvent comprises any of toluene, heptane, pentane, chloroform, and dichloromethane.

39. (Previously Presented) The tip of claim 38, wherein said scanning probe microscope tip is one of an atomic force microscope tip, a near-field scanning optical microscope tip, and a scanning tunneling microscope tip.

40. (Previously Presented) The tip of claim 38, wherein said nanoparticles comprise at least one of an amorphous, crystalline, ferromagnetic, paramagnetic, superparamagnetic, antiferromagnetic, ferrimagnetic, magneto optic, ferroelectric, piezoelectric, superconducting, semiconducting, magnetically-doped semiconducting, insulating, fluorescent, and chemically catalytic nanoparticles.

41. (Previously Presented) The tip of claim 38, wherein said layer of chemically-synthesized nanoparticles comprises a single nanoparticle affixed to an apex of said tip.

42. (Currently Amended) A scanning probe microscope tip consisting of coating said tip with a layer of chemically-synthesized generally spherical nanoparticles affixed to said tip such that a drop of solvent containing said nanoparticles is deposited onto a surface of a liquid subphase prior to said nanoparticles being affixed to said tip, each of said nanoparticles comprising a length and width, wherein said length differs from said width by less than approximately 15%,

wherein said tip is a non-magnetic silicon AFM tip;

wherein said each of said nanoparticles comprises an outer coating layer encapsulating each nanoparticle,

wherein said tip is coated with an adhesion layer,

wherein said adhesion layer is between said tip and said nanoparticles,

wherein said adhesion layer comprises one of n-(2-aminoethyl) 3-aminopropyl-trimethoxysilane, polyethylineimine, polymethylmethacrylate, epoxy, cyanoacrylate adhesive, and an α,ω alkyl chain, ~~and~~

wherein said layer of chemically-synthesized nanoparticles is at least one nanoparticle thick[[.]], and

wherein said solvent comprises any of toluene, heptane, pentane, chloroform, and dichloromethane.